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Abstract

This study adopts the RBV of the firm in order to identify critical advantage-generating resources and capabilities with strong positive export strategy and performance implications. The proposed export performance model is tested using a structural equation modeling approach on a sample of 356 British exporters. We examine the individual as well as the concurrent (simultaneous) direct and indirect effects of five resource bundles on export performance. We find that four resources/capabilities: managerial, knowledge, planning, and technology, have a significant positive direct effect on export performance, while relational and physical resources exhibited no unique positive effect. We also find that the firm's export strategy mediates the resource-performance nexus in the case of managerial and knowledge-based resources. The theoretical and methodological grounding of this study contributes to the advancement of export related research by providing better specification of the nature of the effects – direct or indirect – of particular resource factors on export performance.

Keywords: resources; capabilities; strategy; performance; British exporters.

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Introduction

Empirical evidence suggests that in times of economic slowdown many firms, adversely affected by the recession, intensify their exporting efforts (Rao, Erramilli, & Ganesh, 1990). The economic and financial crisis of 2008/2009 has brought some of the toughest economic conditions many businesses have had to face in quite some time. The shrinking of domestic economies has forced many firms to seek relief by considering overseas markets. Given the increasing competition in international markets at a time when there is a falling demand due to the economic recession worldwide, it is important for firms to understand their key competitive advantages, and transform them into a successful strategy to produce favourable export performance outcomes.

In an attempt to deal with the consequences of the recession (shrinking domestic markets, falling GDP and rising unemployment), and given the potential benefits of exporting, many national governments are also under increasing public pressure to actively look for ways to help smaller businesses initiate or expand their exporting activities. In order to create effective export support programs it is important for the policy-makers to understand the factors that enable exporting firms to compete successfully in the international arena.

This study aims to contribute to this debate, and influence initiatives that may follow, by identifying the critical advantage-generating resources and capabilities with strong positive export strategy and export performance implications. How some firms achieve superior international performance relative to others in the same market is one of the critical issues in international strategic management. This issue is also inextricably bound up in questions such as why firms differ, how firms choose strategies, and what is the main source of competitive advantage that generates superior performance in the international context. The proponents of the resource-based view (RBV) suggest that the idiosyncratic, immobile strategic resources owned or controlled by a firm are its source of competitive advantage (Penrose, 1959; Wernerfelt, 1984). Firms will have a different mix of resources/competencies and resource/competence gaps, and their strategic responses to these allow for the possibility of different paths to growth and internationalization (Bell, Young, & Crick, 1998), and consequent heterogeneity in the international performance of firms.

Drawing on the RBV of the firm we develop and test a relational model of the firm's resources, export strategy and export performance. The empirical validation of the proposed model and its hypothesised relationships addresses a number of research gaps in the existing export performance literature. First, there is a lack of empirical validation of RBV-grounded integrative models of the resource-performance relationships. Prior RBV-

anchored research has put forward a number of theoretical export performance models, but very few attempts have been made to test these models empirically (Wernerfelt, 1984; Collis, 1991; Mahoney and Pandian, 1992; Fahy, 2002). Furthermore, this study tests the model on an original set of primary data while most of the previous studies derive their findings from secondary data or by aggregating findings from previous studies. For example, Aaby and Slater's (1989) "Strategic Export Model" is based on a synthesis of the findings of 55 empirical papers published between 1978 and 1988. More recently, Wheeler, Ibeh and Dimitratos (2008) proposed an integrative resource-based framework of export performance reflecting the aggregate findings from 33 export performance studies undertaken among UK firms during the 1990–2005 period.

Second, the review of the relevant literature indicates that there is a lack of published studies that investigate and empirically validate the resource-performance relationship on a comprehensive pool of firm-specific resources and capabilities. Empirical studies of the above and other complex models have been conducted mostly by focusing on a single resource or a group of resources, the choice determined by the focus of the study (for example, innovation focused studies primarily consider advanced technology resources and capabilities).

Third, given the limited research employing comprehensive sets of resources and capabilities there are no published studies that test for the

concurrent (simultaneous) relationship of resources with export strategy and export performance. Prior empirical studies have been conducted mostly by focusing on the individual relationships of a single resource or a group of resources. We maintain that it is equally important to assess the relationship between a specific resource and the firm's export strategy and export performance relative to and whilst controlling for the impact upon strategy and export performance of the levels of all other resources owned or controlled by the firm.

Fourth, even though the mediating role of export strategy in the resource-performance relationship has been advanced and well-argued in a number of studies, the empirical validation of this proposition is very limited. In this study, we investigate and empirically validated the extent to which export strategy mediates the effects of the firm-specific resources and capabilities upon export performance.

This study addresses these research gaps by making the following contributions. First, it advances and empirically validates a resource-based integrative framework of export performance that encompasses a comprehensive list of firm-specific resources and capabilities, compiled from prior empirical evidence of their relationship with export strategy and export performance, grouped into five factors – managerial resources, knowledge-based resources, organizational resources and capabilities, relational resources, and physical resources. Second, we test the unique individual as

well as concurrent relationships of these resource factors with export strategy and export performance. Third, we investigate the degree of the mediating influence of export strategy on the resource-performance relationship.

In the next section we provide an overview of the theoretical context of the RBV, outline the proposed model and develop the hypotheses of the study. The paper proceeds with a description of the sample and methodology, results, discussion and implications.

Resources, capabilities, strategy and export performance

Edith Penrose, one of the first scholars to recognize the importance of resources for the firm's competitive advantage and performance, defined a firm as a collection of productive, heterogeneous physical and human resources it owns or controls (Penrose, 1959). The RBV stream of strategy research is based on the assumptions that firms within an industry are heterogeneous with respect to the resources they control, and that these resources are not perfectly mobile across firms, making the heterogeneity sustainable and long lasting (Barney, 1991). Not all resources have equal strategic importance or the potential to be a source of sustainable competitive advantage for the firm. Advantage-generating resources, according to Barney (1991), must have the following four attributes: (1) they must be valuable and unique to the firm; (2) they must be in short supply or rare; (3) they must be imperfectly imitable; and (4) they must be difficult or impossible to substitute.

Resource asymmetries generate resource-based competitive advantage and become the driving factor of the firm-level performance differences.

Prior RBV anchored research has put forward a number of theoretical export performance models but very few attempts have been made to test these models empirically (Wernerfelt, 1984; Collis, 1991; Mahoney and Pandian, 1992; Fahy, 2002). Wheeler *et al.*, (2008) employed a resource-based framework in integrating and interpreting influences on export performance identified in 33 export performance studies undertaken in the UK between 1990 and 2005. Their analysis of the aggregate empirical evidence indicates that certain firm-specific resources are consistently found to have positive implications for firm performance. The overall empirical evidence suggests that the following capabilities and resources have a critical influence on export performance: the management's experiential, orientational and attitudinal resources; organizational capabilities in export knowledge and planning; product innovation and service delivery; and the ability to leverage strategically-important relational resources. The inclusion of relational resources enhances the explanatory power of the RBV concept by bridging the internal-external divide. RBV grounded models continue to be refined and empirically tested with varying degrees of support for their central propositions (Newbert, 2007). This study extends the existing empirical literature by testing a resource-based model of export performance.

Model and hypotheses

The central proposition of the RBV is that a firm's superior performance relative to the performance of other firms in the same market can be achieved by acquiring, managing and exploiting unique firm-specific resources. RBV has proven to be a sound theoretical base for developing and testing export models. Building on the propositions and findings of the earlier studies, a resource-based model of export performance is presented in Figure 1. This model extends the earlier work in three ways. Firstly, it integrates and simultaneously tests the effects upon performance of a far wider pool of firm-specific resources than the majority of prior studies. Secondly, it examines the relative importance of different resources and resource bundles and their relationship with the export strategy and performance of the firm. Finally, it investigates the extent to which export strategy mediates the effects of these resources upon export performance.

[Insert Figure 1 Here]

Resources and export performance

The export performance of a firm reflects a firm-specific behaviour in leveraging its resources and capabilities in an international context at a given point of time. Firm export performance is regarded as one of the key indicators of the success of a firm's export operations, and has been an extensively studied phenomenon. Numerous studies have been conducted pertaining to provide a better understanding of the factors (firm- or environment-specific) and behaviours (e.g., export strategy) that make

exporting a successful venture. Since the pioneering work of Tookey (1964) in identifying export success factors, the relationship between export performance determinants and export outcomes has been the subject of analysis in over one hundred empirical studies (Katsikeas, Leonidou, & Morgan, 2000). In an extensive literature review, Gemunden (1991) counted over 700 variables that were advanced and analysed as determinants of export performance. In general, the export performance determinants are viewed as either external, environmental influences (managerially uncontrollable, such as industry characteristics, domestic and foreign market characteristics) or as internal influences, often labelled as managerially controllable factors (Aaby and Slater, 1989; Zou and Stan, 1998; Katsikeas *et al.*, 2000).

Studies examining the internal factors are also grounded in the RBV approach. Over the past 40 years researchers have identified and tested a number of internal influences. Following the logic and findings of earlier models in this study the firm-specific resources are grouped into five resource groups as presented in Figure 1. These are managerial resources, knowledge-based resources, organizational capabilities, relational resources, and physical resources. The categorization of the factors into the five groups was also undertaken by making clear distinction between what constitutes a resource and a capability. The distinction was made by employing Hall's (1992) definition of capabilities as what the firm 'does' as opposed to what it 'has'. Firm capabilities have been argued in prior research to be distinct firm-

specific factors that are largely seen as more dynamic, knowledge/process-based aspects of resources (Foss, 1997), or services obtained from resources (Penrose, 1959). Capabilities are often differentiated as accumulated knowledge and skills that enable the firm to utilize and enhance the value of its resources (Murray, Gao & Kotabe, 2011). Furthermore, empirical evidence suggests that in an international context firm capabilities are more important than resources in explaining heterogeneous export performance (Hall, 1992; Fahy, 2002; Kaleka, 2002).

Previous research has found strong evidence of a significant relationship between each of the resource factors in the framework outlined above and the firm's international performance. Examples include: the top *management*'s knowledge and experience of, and attitudes and commitment to, international activities (Reid, 1983; Aaby and Slater, 1989; Oviatt and McDougall, 1994; Zou and Stan, 1998; Jones, 1999; Katsikeas *et al.*, 2000; Ibeh and Young, 2001; Ibeh, 2003; Ibeh and Wheeler, 2005; Maurel, 2009; Stoian, Rialp, & Rialp, 2011); *export market knowledge*, and *export expertise* (Kogut and Zander, 1992; Conner and Prahalad, 1996; Grant, 1996; Morgan, Zou, Vorhies, & Katsikeas, 2003; Stoian et al., 2011); *export planning capabilities* (Cavusgil and Nevin, 1981; Madsen, 1987; Aaby and Slater, 1989; Bell, 1995; Zou and Stan, 1998; Etemad and Lee, 2003; Dhanaraj and Beamish, 2003; Ibeh and Wheeler, 2005;), *marketing mix competences* (Aaby and Slater, 1989; Zou and Stan, 1998; Katsikeas *et al.*, 2000), *technological*

capabilities (McGuinness and Little, 1981; Burton and Schlegelmilch, 1987; Madsen, 1989; Cavusgil, Zou, & Naidu, 1993; Styles and Ambler, 1994; Rodriguez and Rodriguez, 2005); *business and government relational resources* (Madsen, 1987; Coviello and Munro, 1997; Srivastava, Shervani, & Fahey, 1998; Zou and Stan, 1998; Crick and Jones, 2000; Etemad and Lee, 2003; Ray, Barney, & Muhanna, 2004; Ibeh and Wheeler, 2005; Styles, Patterson, & Ahmed, 2008; Lages, Silva, & Styles, 2009); and *physical resources* (Penrose, 1959; Bilkey, 1978; Reid, 1983; Miesenbock, 1988; Ford and Leonidou, 1991; Chetty and Hamilton, 1993; Zou and Stan, 1998; Ibeh and Wheeler, 2005).

Hence we hypothesise:

Hypothesis 1: Management resources will have a significant positive effect on a firm's export performance.

Hypothesis 2: Knowledge-based resources will have a significant positive effect on a firm's export performance.

Hypothesis 3: Organisational capabilities will have a significant positive effect on a firm's export performance.

Hypothesis 4: Relational resources will have a significant positive effect on a firm's export performance.

Hypothesis 5: Physical resources will have a significant positive effect on a firm's export performance.

The mediating influence of export strategy

Resources and export strategy

For a firm to outperform its competitors it must display a consistency between its resources and the environment as well as between its resources and the strategic choices it makes (Fahy, 1998). Each strategic approach will place unique demands on the firm's resources. For example, drawing on the RBV of the firm, Dhanaraj and Beamish (2003) developed a causal model of resources, export strategy and export performance. The tests of the causal relationships demonstrated that enterprise resources, technological intensity and firm size are good predictors of export strategy, and export strategy was shown in turn to positively influence firm performance in the case of U.S. and Canadian exporters. Bell, McNaughton, Young and Crick (2003) found that differences in motivation, objectives, and knowledge intensity influence the strategic approaches adopted by firms in the case of SMEs. Collis' (1991) study of the global bearings industry indicated that the performance of certain firms was related to their possession of key resources, that structural changes were made to facilitate resource development and that an organization's heritage constrained its strategic choices.

In the international business literature, and in our proposed resource-strategy-performance model (Figure 1), the export strategy construct is represented by two measures: export intensity (the percentage share of the export sales in the total annual sales of the firm) and export spread (the

number of countries the firm currently exports to). Export intensity has been employed more as a performance indicator than strategy measure in many of the export models advanced in prior studies (Gemunden, 1991). However, a high share of foreign sales in the total sales of a firm does not actually say how successful that company's international operations are. It merely shows that the firm has a higher degree of internationalization and hence it could be argued that it is actually an outcome of that firm's international strategy – growth-oriented firms will have a higher degree of export intensity (Dhanaraj and Beamish, 2003). Export spread (export market scope) is considered a good indicator of a firm's choice of market expansion and geographic diversification strategies (regional or concentration strategy versus global or spread strategy). The concentration of resources and marketing efforts on a relatively small number of foreign markets is an indication of execution of market concentration strategy, and the spread of resources and activities across as many markets as possible implies execution of market spreading strategy. Viewed in this way, export intensity and export spread are indicators representing the outcomes of a firm's export strategy.

The proposed model treats export strategy as a mediating construct shaped by the firm's resources, which in turn has a direct impact on export performance. Building on Penrose (1959) and consequent RBV theoretical works and empirical evidence, we argue that the five major groups of

resources and capabilities detailed above will all have a direct impact upon a firm's export intensity and export spread.

Hence we test the following hypotheses:

There is a significant positive relationship between:

Hypothesis 6: Managerial resources and the firm's export strategy (quantified by export intensity and spread).

Hypothesis 7: Knowledge-based resources and the firm's export strategy.

Hypothesis 8: Organisational capabilities and the firm's export strategy.

Hypothesis 9: Relational resources and the firm's export strategy.

Hypothesis 10: Physical resources and the firm's export strategy.

Export strategy and performance

Having a defined export strategy or any form of strategic orientation in planning and organizing for exporting seems to have beneficial implications for export performance (Aaby and Slater, 1989; Zou and Stan, 1998; Dhanaraj and Beamish, 2003; Ibeh and Wheeler, 2005). For example, Aaby and Slater's (1989) "strategic export model" implies that a firm's competences and strategy have a direct and significant influence on their performance, whereas firm characteristics are less important. The choice of a specific exporting strategy (concentration or diversification, first-mover or follower) was found

to be mostly insignificant (Madsen, 1987; Zou and Stan, 1998). The export strategy in our model has two strategic concepts: export intensity and export spread.

The relationship between the export intensity (degree of internationalization) and a firm's export performance is a well-researched topic resulting in inconsistent and contradictory findings, ranging from positive relationship to negative linear relationships, and non-linearity in the form of U-shaped, inverted U-shaped, and horizontal S relationships (Li, 2005; Contractor, 2007; Ruigrok, Amann, & Wagner, 2007). There is also considerable empirical evidence of the impact of a specific export strategy (market concentration or market spreading) on the export performance of the firm, with contradictory evidence as to which strategy results in better performance (Hirsch and Lev, 1973; Tookey, 1975; Hamermesh, Anderson, & Harris, 1978; Attiyeh and Wenner, 1981; Piercy, 1981; Cooper and Kleinschmidt, 1985; Lee and Yang, 1990; Marandu, 2009). The general assertion is that conceptually, increasing internationalization should enhance a company's performance since it enables optimization of the cost/benefit ratio of internationalization and maximizes its performance (Contractor, 2007; Hennart, 2007). In order to validate these findings we test the following hypotheses:

Hypothesis 11: A firm's export strategy (export intensity and spread) will have a significant positive effect on the firm's export performance.

Hypothesis 12: Export strategy (export intensity and spread) will mediate the relationship between a firm's resources and the firm's export performance.

Data collection and analysis

Sample and data collection

The sampling frame for this study was compiled from the British Exporters Database (BED) 2007 (www.exportuk.co.uk). This database was validated by cross-referencing it with the TradeYorkshire Business Database (UK Trade & Investment), and the list of winners of the Queen's award for excellence in exporting for the previous five years. In selecting the sampling frame the following search criteria were applied: firms should be current exporters, they must have been active exporters in the last five years or longer, and they should be both independent and indigenous.

Given the nature of the information requested, the export manager/director was deemed to be the most suitable source and was therefore the primary target to receive the survey. For companies without a designated export manager, the top executive of the company was contacted. Based on the above criteria the search procedure generated a list of 1,505 indigenous British exporting companies with data on their top management and their personal e-mails. A pilot survey, sent to ten managing directors of exporting companies across the UK, randomly selected from the sampling frame, was first conducted to refine the questionnaire and identify potential flaws and

sources of bias. Pilot respondents were asked for feedback regarding the clarity of the terminology used, any ambiguity of the questions and concepts investigated, and the ease of completion. Their comments indicated that the research questions were relevant, with terminology and concepts both appropriate and clear.

The primary dataset was collected at the firm level via an internet-based survey questionnaire, designed and conducted adhering to the principles of the Tailored Design Method (TDM) proposed by Dillman (2000). The use of an Internet based survey was deemed the most time- and cost-effective tool for administering the survey questionnaire to a sample of this size and type. Participants, especially privately owned firms, were expected to be highly sensitive to requirements to disclose their financial data, particularly objective data. Hence, in order to reduce the risk of a low response rate, participants were asked for relative data about their sales and profitability.

After three rounds of contact attempts, 356 completed surveys were received, resulting in an effective response rate of 23.7%. Non-response bias was assessed by the use of wave analysis, in which first-wave responses are compared with second-wave answers (Armstrong and Overton, 1977). In this survey, 191 firms responded to the first e-mail contact, with 165 responding only after receiving a second or third e-mail request. To examine the relationships between response time and key study variables (such as number of employees and export experience), chi-square tests or independent-sample

t-tests were employed. There was no evidence of any significant relationships at the $p < 0.05$ level between study variables and wave of response. Within the 356 completed surveys there was a very minor amount of missing data across the survey items (< 15 cases for any one item), with no evidence of non-random item non-response.

Measures

Based on a comprehensive literature review, a list of the potential *resources* conceptualized and empirically tested in RBV studies over the past 40 years was compiled. The broader view of resources is frequently used interchangeably with terms and concepts such as "competences", "capabilities", or "dynamic capabilities", which are largely seen as more dynamic, knowledge/process-based aspects of resources (Foss, 1997), or services obtained from resources (Penrose, 1959). Some researchers consider resources (tangible and intangible) and capabilities as two distinct sources of competitive advantage, with capabilities being more important than resources in explaining firms' heterogeneous export performance (Hall, 1992; Fahy, 2002; Kaleka, 2002). In this study, particular attention was paid to making a clear distinction between firm-specific resources and firm-specific capabilities.

Considering the empirical evidence of the relationship between each resource/capability and both export strategy and export performance, this extensive list was narrowed down to 37 resources. Following the most

common classification used by the RBV scholars and our hypothesised structure, these 37 resources were grouped into five sets, namely: physical, managerial, organizational, relational, and knowledge-based resources. Full details of these 37 resources and their categorization are given in Appendix 1. We measured the extent of each of these 37 firm-specific resources using perceptual measures, asking the manager to appraise the firm's ownership/control of each resource, via a Likert-type five-point response coding ranging from 'strongly disagree' (1) to 'strongly agree' (5). The use of perceptual measures in combination with Likert-type scales is a common practice in the export literature, as it has been proven to be successful in improving response rates, particularly in the case of smaller firms which are more reluctant to disclose their factual data (Dhanaraj and Beamish, 2003; Zou, Taylor, & Osland, 1998).

The extensive array of indicators employed in the export performance literature is a reflection of the difficulties in accessing export performance data as well as the on-going search for consistent and comprehensive measures. For example, Katsikeas, Leonidou and Morgan (2000), in their analysis of 100 export-related articles identified 42 different performance indicators (23 economic, 14 non-economic, and 5 generic). Measures of export performance are usually categorized into two broad groups: (i) financial/economic measures (sales-related indicators, profit-related indicators, or market share-related indicators), and (ii) non-financial/non-economic measures (perceived

export success, achievement of export objectives, satisfaction with export performance, or strategic export performance). While in the early empirical studies export performance was operationalized as a unidimensional or single-item measure (Gemunden, 1991), the more recent research has advanced more complex export performance constructs in the form of multidimensional, multi-item measures (Zou *et al.*, 1998; Lages and Lages, 2004).

Recognizing the reluctance of the privately owned companies to disclose financial data (Brouthers and Xu, 2002), data on *export performance* was derived from measures reflecting the manager's perception of the level and the relative importance of the firm's export performance over the past five years, specifically by employing the EXPERF scale developed by Zou *et al.* (1998). It may be argued that this composite, three-dimensional scale comprising financial and strategic export performance measures, and measures of satisfaction with the export venture, bridges the divide between other objective and subjective performance measures. This scale has been empirically validated in a cross-national study of U.S. and Japanese exporters (Zou *et al.*, 1998) as well as in a study of the UK and Australian exporters (Styles, 1998), strengthening its value as a valid generalized export performance measure. It consists of eight items, each assessed using a five-point response coding ranging from 'strongly disagree' (1) to 'strongly agree' (5) (for further details see Appendix 1).

The export strategy in our model is measured by two strategic concepts, most often used in the exporting literature: export intensity and export spread. The firm's *export intensity* was measured as a percentage share of the export sales in the total annual sales of the firm. *Export spread* was measured by the number of countries the firm currently exports to.

Control variables. Regardless of the firm-specific advantage-generating resources, other firm-specific factors may have an effect on the resource-performance relationship, such as size of the firm and the firm's export experience. *Firm size* was measured in terms of the number of employees, collected as categorized by the EU definition of SMEs, where a firm employing less than 250 employees was considered a *small and medium size firm (SME)*, and a firm with more than 250 employees was labelled as a *large firm*. *Export experience* was measured by a five category ordinal variable, which, given the relatively small number of cases in each of the four categories under a decade's experience, and after examination of its relationship with the outcome to ensure that critical information was not being lost, was dichotomized into *less experienced exporters* with less than 10 years exporting experience, and *more experienced exporters* with 10 or more years of exporting experience.

Statistical analysis

To explore and validate the grouping of our items measuring resources (37 items) and export performance (8 items) into scales and evaluate their

measurement of distinct underlying constructs, we derived a preliminary measurement model for them using Exploratory Factor Analysis (EFA) on one randomly-selected half of the data. We then validated this using Confirmatory Factor Analysis (CFA) on the other half of the data in order to sidestep the upward bias on measures of fit caused by building and testing a model on the same set of data. Having finalised an appropriate measurement model, this was followed by a series of supplementary analyses to examine different aspects of the model's validity (structural, convergent and divergent) and the internal consistency reliability of each scale.

After checking basic sample properties of, and correlations between the emergent resource and export performance factors, measures of export strategy and control variables, we then proceeded to test our hypotheses by extending our measurement model to a structural equation model (SEM) incorporating the export strategy variables as mediators of a causal resource-performance relationship, with the addition of control variables for size and export experience.

Our modelling strategy was based on a 'top down' approach, starting with a full model (model A), containing direct and indirect (via strategy) paths from each resource factor to performance, enabling the testing and comparison of unique direct resource-performance, resource-strategy, strategy-performance and indirect resource-strategy-performance effects. The indirect effect was calculated as the product of the respective path coefficients between

a resource variable and a strategy variable, and that strategy variable and performance (Sobel, 1982; Bollen, 1989; Muthen and Muthen, 2004). The path coefficients, the strength of the indirect effects between resources and export performance via the strategy variables determine the extent to which each resource-performance relationship was independent of, partially mediated by, or fully mediated by strategy. We then tested two restricted versions of the full model; a model (B) where all paths between resources and performance were fixed equal (testing the equality of resource-performance effects), and a further fully-mediated model (C), with direct resource-performance paths removed. Model comparison tests were performed to ascertain the extent to which resource-performance effects varied and/or were fully mediated.

The CFA and SEM analyses described above were performed using path analysis software Mplus, with Full Information Maximum Likelihood estimation used to fit the models. The $p < 0.05$ level of statistical significance was used throughout, with one-tailed tests of path coefficients employed where hypotheses were directional.

Results

Sample description

Of the firms who responded, 267 (75%) were manufacturing companies, with the remainder from service industries. Almost 90% of the firms were small and medium sized enterprises, with the majority (72%) having 10 or more

years of export experience. Their main export region was Europe (57%), with the rest split roughly equally between North America, Asia-Pacific and Other regions. Almost half of the firms (45%) in the sample earned more than 50% of their revenues from exports, with 60% exporting to more than 10 different countries, and 31% to more than 30.

Deriving the measurement model

For the exploratory factor analysis on one 'construction' half of our data, principal-axis factoring (PAF) was utilized as the extraction method, with the number of factors determined by consulting both the scree plot and with reference to Kaiser's 'eigenvalue > 1' criterion, and with an oblique rotation applied to aid interpretation of the resulting solution (Conway and Huffcutt, 2003). After the removal of several items, which either cross-loaded or had very low loadings, including all five items measuring physical resources, a clear 9-factor solution was found from the remaining 32 items. All factor-item loadings were greater than 0.40, the communalities for all items were above 0.46, and the factors together explained 69 percent of the shared variance.

This emergent model revealed distinct patterns in the loadings of the resources and export performance items across the nine factors that were consistent with the theoretical propositions for four of the five resource bundles in our model. As expected, items measuring managerial resources grouped together as indicators of a single factor. Items representing organizational capabilities were found to be measuring three distinct facets of

such capabilities, namely advanced technological capabilities, quality product/service capabilities, and export planning capabilities. Likewise, the knowledge-based resources and relational resources bundles each split into two sub-groupings; those measuring export expertise, versus those indicating export knowledge, and those focusing on business relationships versus items which measured the relationship with government. All eight export performance items loaded highly on a single factor. Our proposed 9-factor measurement model for our items was then tested on the other random 'validation' half of the data using Confirmatory Factor Analysis. The solution (χ^2 = 721 on 427 df) suggested a relatively good fit to the data as judged by the range of key fit indices recommended by Hu and Bentler (1998); specifically CFI = 0.92; TLI = 0.91; RMSEA = 0.06; SRMR = 0.06. We then reverted to use of the whole sample, and the internal consistency reliability of each of the groupings ('scales') of items suggested by the item-factor breakdown of this measurement model was assessed. The Cronbach's alpha coefficients for all 9 scales were more than adequate, with all values greater than 0.75, and no instances of item removal improving the consistency of a scale. The results of these exploratory and confirmatory factor analyses and the reliabilities of the resulting scales of items are summarised in Table 1.

[Insert Table 1 Here]

As recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we performed a post-hoc analyses, fitting a one-factor model to the 32

items to check whether variance in the data can be largely attributed to a single factor i.e. the potential existence of substantial common-method variance; however this resulted in a substantially poorer fit to the data (χ^2 = 3880; *df* = 463; CFI = 524; TLI = 0.490; RMSEA = 0.150; SRMR = 0.117). Likewise, we examined the convergent and divergent validity of these nine factors using the 'average variance extracted' (AVE) method of Fornell and Larcker (1981). The criterion for convergent validity, that the AVE scores of each scale (the average communalities) are all above the benchmark of 0.50, was comfortably achieved (see Table 2). Similarly, Fornell and Larcker's (1981) criterion for divergent validity was satisfied, the variance shared between any pair of factors (the squared inter-factor correlations) was always less than the lowest AVE score for any pair of factors.

[Insert Table 2 Here]

The physical resources items failed to group into a clearly identifiable factor at the exploratory factor analysis stage and so were excluded from the measurement model. In fact the wording of these items indicates a focus on five distinctly different physical resources, so it is unsurprising to find only weak to medium correlations amongst them ($r < 0.35$); in fact, taken together they possess an index-like quality. As a result of this, and to ensure that physical resources were included in the subsequent structural equation modelling process we decided to compute the mean score across the five

items, and use the resulting observed variable as a predictor representing a 'physical resources index'.

The observed mean scale scores of each resource dimension within our model (calculated over the whole sample, and also given in Table 1) indicate that, on average, the firms within this sample agree with statements regarding themselves as having organizational capabilities in providing good quality goods and customer service, capable management resources, significant export expertise and knowledge, good business relationships, and sufficient physical resources. Their perceptions regarding their advanced technology and export planning capabilities were inclined towards neutrality, and they tended to disagree with positive statements with respect to their government links.

Before constructing the structural equation model, we examined the correlations shared within the 9 factors resulting from the measurement model, and the observed physical resources index (see Table 2). Each resource factor (and the physical resources index) shared a positive correlation with the export performance factor, with all but one of these coefficients being of medium to large size ($0.18 < r < 0.64$). These provide initial support for hypotheses 1 to 5, i.e. that each of the five resource groups will have a significant positive effect on export performance. Correlations between resources were all positive, and almost all of medium to large size, but, with a maximum of $r = 0.66$, did not approach the benchmark limit of 0.85 for viably distinct factors (Kline, 1998), providing further evidence of divergent validity.

Structural Equation Model

The measurement model outlined above was extended into a series of structural equation models (A, B and C), with the eight resource factors and the observed physical resources index as potential antecedents and the export performance factor as an outcome. We introduced two variables representing export strategy, specifically export intensity and export spread, as potential mediators of resource-to-performance effects; and also two dichotomous variables for company size and export experience, to control for the effects of these potentially confounding background variables upon export performance.

Model A, the full model, tests concurrent (i.e. simultaneous) effects of resources on export performance, both direct effects, and indirect effects via strategy. As presented in Table 3, this model showed a good fit to the data (χ^2 = 1197; *df* = 543; CFI = 0.917; RMSEA = 0.061; SRMR = 0.058). The model's path coefficients are presented in Table 4 and the results are summarised below. A graphical representation of the model, omitting non-significant paths and item-factor loadings for reasons of simplicity, practicality and ease of interpretability, is given in Figure 2.

[Insert Table 3 Here]

[Insert Table 4 Here]

[Insert Figure 2 Here]

The path coefficients from model A indicate strong positive effects of management resources, knowledge-based resources (export knowledge, export expertise), organisational capabilities (specifically advanced technology capabilities), and of export strategy (both spread and intensity) upon export performance, giving support for hypotheses 1-3 and 11. Management resources, export knowledge, and export expertise also exhibit positive effects on export strategy, primarily on spread, supporting hypotheses 6 and 7. The two control variables, export experience and firm size, have a significant positive impact on export strategy (except for the insignificant negative size-export intensity relationship), but do not have a direct effect upon export performance.

The effects of management resources and export knowledge are both direct ($\beta = 0.345$, $p < 0.05$; $\beta = 0.215$, $p < 0.05$, respectively) and indirect via strategy, primarily via export spread ($\beta' = 0.183$, $p < 0.05$; $\beta' = 0.057$, $p < 0.05$, respectively). Export expertise impacts upon performance only indirectly ($\beta' = 0.050$, $p < 0.05$), whereas technology capabilities have only a direct impact upon performance ($\beta = 0.140$, $p < 0.05$), and do not operate via strategy. We thus have partial support for hypothesis 12, in that three of the four resource-performance effects detected have, at least in part, indirect (mediated) effects via strategy.

Though physical and relational resources shared medium to strong positive bivariate relationships with performance (see Table 2: r = 0.36, r =

0.38 and r = 0.21 respectively), once the effects of other resources were held constant, neither had a significant positive impact upon performance or strategy. Indeed, the path coefficient from government relational resources to export spread indicated the possible existence of a negative relationship.

To supplement these analyses, restricted models B and C were then fitted to the data. Model B, a restricted version of model A with paths between resources and performance, and between resources and strategy fixed equal across resources (i.e. the effect of each resource on the outcome is the same) offered a poorer fit to the data (χ^2 = 1340; df = 567; $\Delta\chi^2$ = 143; $p < 0.05$). Likewise, model C, which restricts model A to a fully-mediated model by removing all direct paths from resources to performance, whose substantially increased model chi-square statistic indicated a poorer fit than model A (χ^2 = 1280; df = 552; $\Delta\chi^2$ = 83; $p < 0.05$). The fit statistics for each model and comparison tests against the full model are summarised in Table 3. Together these results indicating that both direct and indirect relationships between resources and performance did indeed occur (i.e. there was no full mediation), and that these relationships were differential in size. Specifically, managerial resources have a more powerful effect upon performance than knowledge-based resources or organisational capabilities, which in turn have more of an impact than physical or relational resources.

Discussion

This study's novel evidence of significant direct and indirect (via export strategy) effects that managerial resources exhibited on export performance reinforces the argument that management's knowledge of, experience in and attitude towards international ventures is one of the key success factors in the firm's international operations. Furthermore, our findings of the effects on strategy and export performance of management-related resources and capabilities extend the findings of previous export related research (Aaby and Slater, 1989; Chetty and Hamilton, 1993; Ford and Leonidou, 1991; Leonidou and Katsikeas, 1996; Zou and Stan, 1998) by providing novel empirical evidence of the critical role of management resources relative to the other firm-specific factors. Namely, when the resource-performance relationships were tested concurrently, the results implied that, among all the tested resource factors, management resources have the strongest direct effect on export strategy and the strongest direct (and indirect) effect on export performance. A knowledgeable and experienced management team enhances the firm's export performance both indirectly by creating and executing profitable export strategies and directly by successfully managing day-to-day international operations. Capable management resources also strengthen the ability of the firm to spread its operations across a wider geographic area and enter an increasing number of foreign markets.

The findings from this study also contribute to the advance of the knowledge-based view of the firm by providing strong support for its main

proposition that heterogeneity in knowledge-based resources is a significant source of variation in firm performance (Grant, 1996; Kogut and Zander, 1992; Morgan *et al.*, 2003). We found that export market knowledge (i.e. information about the export markets, customers, competitors, channels and other players in the target market) had a significant positive effect on the firm's export performance both directly and indirectly through export strategy. An in-depth knowledge of a foreign market reduces the liability of foreignness that enables the firm to choose a strategy based on an optimal fit between its firm-specific advantages and foreign market characteristics. Furthermore, a good understanding of the foreign market environment (formal and informal) and its key players facilitates a successful implementation of the chosen strategy yielding positive performance results.

These findings also endorse the widely held belief that experiential knowledge (export expertise) about foreign markets and operations is a driver of the firm's international expansion strategy (Cavusgil, 1984; Johanson and Valhne, 1990). Substantial international experience does not automatically (directly) generate positive export outcomes. It does so indirectly through export spread strategy which is consistent with the stage theory where internationalization is seen as a sequential, staged process contingent on the incremental international market knowledge and experience of the firm. The accumulated knowledge through experience in one market reduces the psychic distance to other markets with similar characteristics and the firm initiates a

new international venture in new foreign market/s (Johanson and Wiedersheim-Paul, 1975), i.e. increasing the export spread of the firm. Export spread in turn exhibits a significant direct positive effect on export performance.

A number of observations can be made based on the findings on organizational capabilities. It emerged that the firm's marketing mix capabilities (product/service quality, adaptation, delivery) do not have a significant impact on export performance. The neutral effects of these variables, evident also in previous studies, reflect the on-going debate on the marketing mix importance for export performance (Zou and Stan, 1998). However, the importance of a firm's technology capabilities received positive support in our study. Possession of advanced technology was found to have a significant positive effect on export performance outcomes but not on or through any extent of export strategy, i.e. possession of advanced technology does not improve the firm's export performance by enhancing either its export intensity or market spread. This exclusively direct effect of advanced technology capability on performance reinforces the argument that technology is recognized as one of the driving forces of product mobility across national borders (Buckley and Casson, 1991) primarily because of the high costs associated with its development. Rapid internationalization, regardless of the firm's choice of entry mode (export intensity) or number of target foreign markets (export scope), facilitates amortization of the high investment costs

associated with R&D, improves the cost/benefit ratio of the firm's international expansion and hence has a direct positive effect on the firm's performance.

When considered alone, a firm's relational and physical resource showed significant positive correlations with performance. When these effects were tested simultaneously with the effects of the other resources, the relational and physical resources of the sample firms have less of an impact upon export performance than the other resources and capabilities considered. Contrary to some prior findings (Srivastava et al., 1998; Etemad and Lee, 2003) the results indicate that relational resources such as the exporting firm's capability in managing and leveraging business and government network relationships appear not to be perceived to play an important role in achieving positive export performance outcomes. This finding could be partially explained by the nature of the sample. Namely, among British managers networking is apparently not perceived as an advantage-generating opportunity and hence the ability to leverage strategically-relevant relational "capital" to access and exploit external advantage-generating resources seems to have less important performance-enhancing effects relative to the other resources and capabilities.

The findings with respect to physical resources support previous evidence that resource availability in the form of production capacity, manpower, finances, location, as tangible assets are less important than the

firm's intangible advantage-generating resources in the global environment (Fahy, 2002). Physical resources are more readily available and easy to access or substitute, i.e. a need for extra capacity could be relatively easily met by outsourcing arrangements or alternative distribution channels. Hence, these resources are perceived as less critical for the firm's export performance relative to the scarce, more valuable and harder to imitate or substitute resources, such as advanced technology or capable managers.

This study extends prior research by identifying the mediating role of the export strategy in aspects of the resource-performance relationship. Managerial and knowledge-based resources have been shown to have a significant direct positive influence on export strategy (represented by export intensity and export spread), and export strategy in turn has evident significant direct impact on the firm's export performance. The effect of export expertise in particular exists primarily through export strategy, specifically spread, whereas managerial resources and export knowledge retain direct effects upon export performance in addition to that manifested through strategy. These findings imply that the mere possession of certain advantage-generating resources and capabilities would not automatically yield better performance unless they are translated into adequate strategies.

Another major contribution of this study is in providing fresh empirical evidence that resources and capabilities are two distinct concepts. The exploratory and confirmatory factor analysis of the 37 distinct resources

resulted in eight discrete factors, which made a clear distinction between resources and capabilities. These findings provide a new contribution to the argument advanced in prior research that resources (tangible and intangible) and capabilities are two distinct sources of competitive advantage (Hall, 1992; Fahy, 2002; Kaleka, 2002). Contrary to the views advanced in prior research that the capabilities of firms are more important than resources in explaining firms' heterogeneous export performances (Hall, 1992; Fahy, 2002; Kaleka, 2002), the findings in this study imply that managerial resources have the strongest positive relationship, both direct and indirect, with export performance. One possible explanation could be the nature of the sample firms – exporters. Namely, prior evidence indicates that in the case of smaller international firms, such as exporters, the management is considered to be the key driving factor of the internationalization process and its outcomes, and as such to be more important than the other firm-specific resources and capabilities.

Contributions, implications and limitations

The theoretical and methodological grounding of this study contributes to the advancement of export related research in the following aspects: one, by providing better specification of the nature of the effects – direct or indirect – of particular resource factors on export performance (Zou and Stan, 1998); two, by conducting exploratory as well as confirmatory factor analysis to validate construct measurements, and utilization of structural equation

modelling to improve validity, reliability and error levels; and three, by employing multiple measures of export performance, including subjective options like perceived satisfaction with the export performance (Sousa, 2004).

This study advances the RBV of the firm as a valuable theoretical framework in identifying critical advantage-generating resources and capabilities with strong positive export performance implications. The main findings of this study that make a novel contribution to the RBV grounded export performance research may be summarised as follows.

First, the findings show that *not all resources have equal strategic importance or have the potential to be a source of successful export performance*. The assessment of the concurrent effects of all observed resource variables on export performance revealed a set of particular resources/capabilities that possess the VRIS attributes (valuable, rare, imperfectly imitable, and hard to substitute). This research identified the following firm-specific resources and capabilities as advantage-generating factors among the sample of surveyed British exporters: managerial resources, knowledge-based resources (both expertise and knowledge) and technology capabilities. All four of these resources/capabilities are either skill-based or knowledge/process-based resources and capabilities and as such have high levels of tacitness, complexity and dynamism, and consequently are firm-specific and difficult to duplicate. These resources generate resource-based competitive advantage and become the driving factor of the firm-level export

performance differences (Barney, 1991). This study therefore provides fresh empirical support for the RBV propositions.

Second, the findings imply that *advantage-generating resources and capabilities have both direct and indirect (via export strategy) positive effects on export performance*. Three of these four resources and capabilities were found to have a significant positive direct (concurrent) effect on export performance. Furthermore, managerial resources and knowledge-based resources (both export knowledge and export expertise) were found to have positive indirect effects on export outcomes via export strategy.

Third, it was observed that *the firm's export strategy has a positive effect upon the firm's export performance*. The findings show that export strategy, measured by export spread and export intensity, has a significant direct positive effect on export outcomes as well as indirect influence via full or partial mediation of the relationships between specific resources and export performance. We can argue that a possession of an adequate export strategy not only reinforces the positive impact of the firm's critical advantage-generating resources on performance but some of those effects are only viable via an executed strategy.

Fourth, the findings show that *resources and capabilities are two distinct sources of competitive advantage and successful performance*. The results of the exploratory and confirmatory factor analysis provide new empirical evidence in support of the proposition that resources and capabilities

are two distinct concepts. Furthermore, their unique (i.e. independent) effects upon export performance, and the variation of these effects between direct paths and indirect paths via strategy, point towards their discrete significance for the firm's export strategy and export performance.

This paper offers fresh evidence on the importance of key resources and capabilities in facilitating successful export performance with both managerial and policy implications. The study's findings could be used as a set of benchmarks by exporters in assessing the composition of their array of resources and capabilities and in identifying the critical resource/competences gaps that may constrain their international expansion and success. Growth-oriented exporters that seek to expand their operations into new markets need to prioritize their investment in managerial staff that would possess pro-exporting attributes such as international orientation and experience. They should aim toward having an export capable top management by both enhancing the skills of the existing management through training and international exposure and by acquiring new experienced and internationally oriented managers.

The study's findings also highlight the importance of particular knowledge-based resources and organizational capabilities. Success-oriented exporters need to have an established firm-level knowledge base for gathering market intelligence (i.e. information about the export markets, customers, competitors, channels and other players in the target markets) and even more

so an efficient knowledge-sharing mechanism within the firm. The observed significant positive effects of advanced technology capabilities on export performance suggest that export-oriented firms would significantly benefit from a strategic investment in advancing product and process technologies. This direct positive relationship, with no mediating effect by strategy, implies that technologically advanced exporters are able to generate superior export performance from their international operations independent of the exporting strategy they execute.

One area of concern worth discussing is the negative effect detected between the relational resources (networking capabilities) among the exporters in our sample, and their export spread. It seems that exporters do not perceive business and government relationships as advantage-generating and hence investable assets. The strong negative relationship between government relationships and the firm's expansion and spread strategies may be a signal that government export development programmes are perceived to be actually stalling instead of accelerating the internationalization activities of firms.

Policy makers could employ the study's findings as valuable guidelines in directing their export support policies and programmes. The observed significance of the managerial resources, know-how and organizational capabilities should assist policy makers in developing specific capacity building programmes that would enable exporters to bridge the identified critical resource gaps. Some of these initiatives may include targeted

training to develop and enhance exporter's international management skills, export planning competencies, support R&D initiatives or acquisition of new technology, and providing foreign market intelligence. Government export developing programmes are often criticized for doing "too little, too late" hence this capacity building assistance should be timely and customized to the specific resource deficiencies of different sectors or geographic regions.

The limitations of the study should be noted. Particular resource-performance implications identified as significant in this study may be country-specific and diverse national settings may produce different advantage-generating resources as critical influences on internationalization strategies and performance. Relational resources, for example, were perceived as non-significant by our sample of British exporters, while a majority of prior research had found them to be one of the critical advantage-generating and export performance-enhancing factors (Madsen, 1987; Coviello and Munro, 1997; Zou and Stan, 1998, Crick and Jones, 2000; Kaleka, 2002; Ray *et al.*, 2004; Ibeh and Wheeler, 2005, Styles *et al.*, 2008). Our data are also cross-sectional, and industry specific effects may be mitigated. Different industry sectors have been found in prior studies to have distinct resource/competences advantages in global settings. Testing the proposed RBV grounded integrative resource-performance model in different national settings or on industry specific samples will help generalise the findings. Finally, this study does not take into account the influences of the external environment. The diverse

regulatory and economic framework of the export markets may have location-specific export performance implications not addressed in this study.

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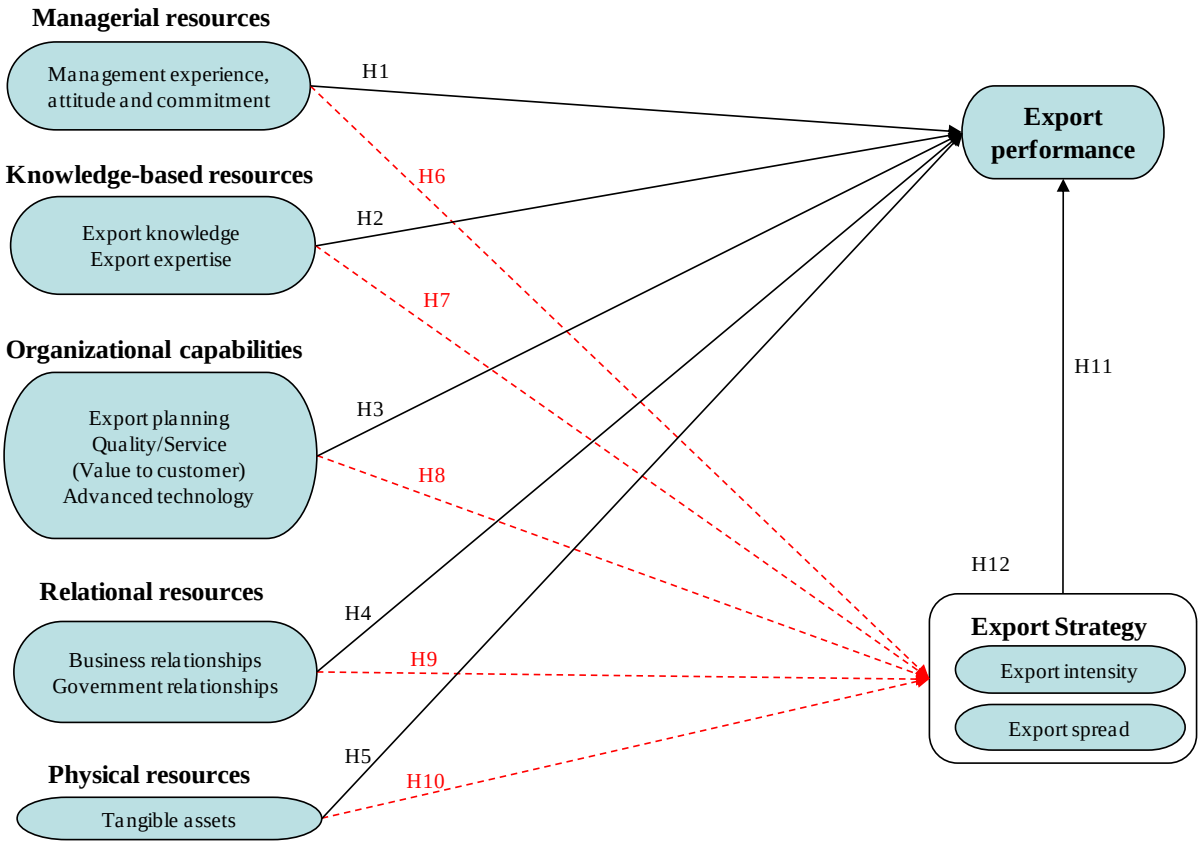

Figure 1. Resource-based model of export performance

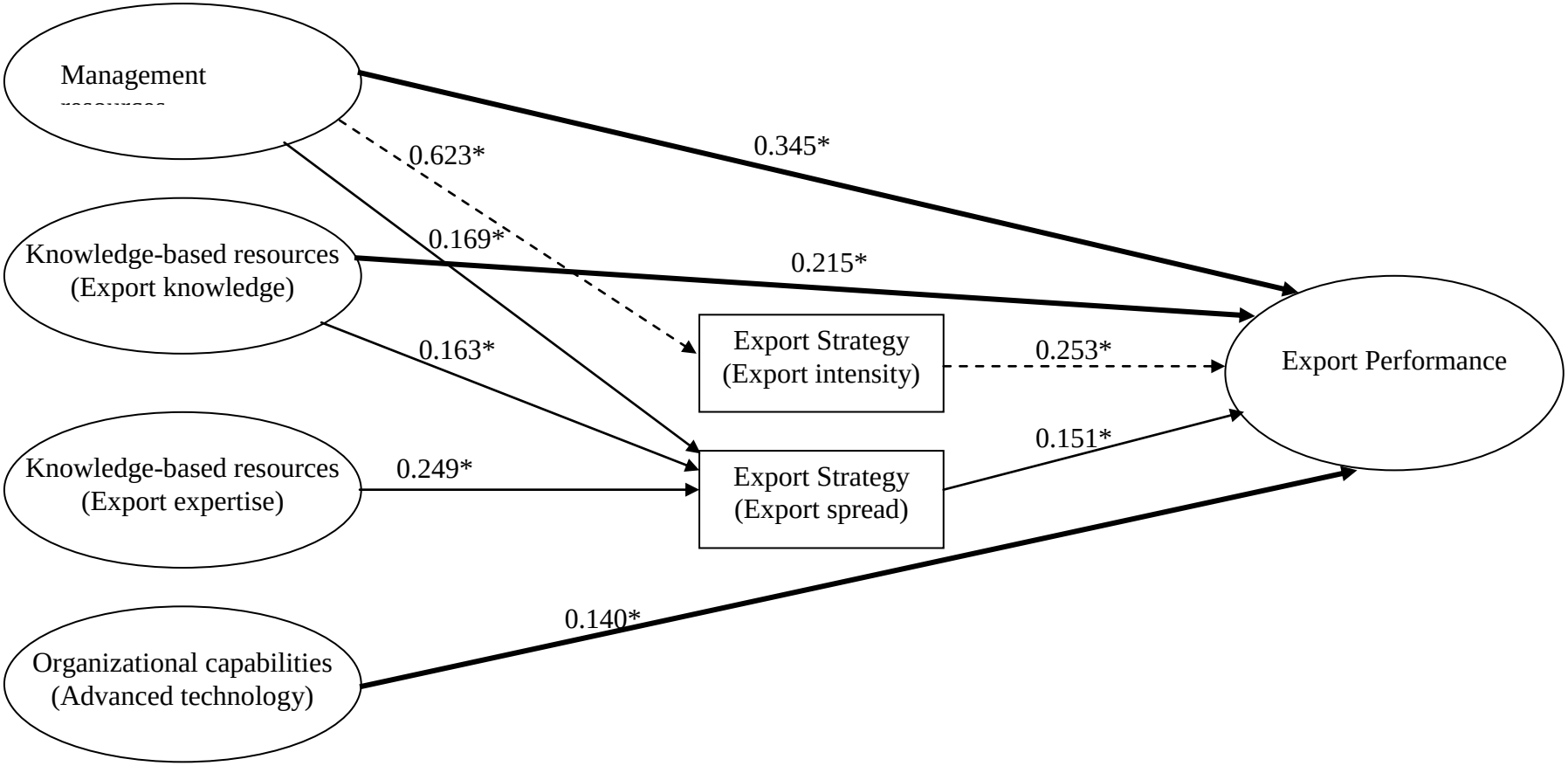

Figure 2. Structural Equation Model (C) for resource-based model of export performance, showing standardised path coefficients

Model χ^2 = 1197, df = 543; CFI = 0.917, RMSEA = 0.061, SRMR = 0.058,
N = 329. * = $p < 0.05$, 1-tailed test.
Figures shown on paths are standardised path coefficients
Item-factor paths, item and factor variances, control variables, non-significant causal paths, and correlations between resources factors are omitted for parsimony.

Table 1. Exploratory factor analysis, confirmatory factor analysis, internal consistency reliabilities and observed mean scores for resources and export performance items/dimensions

Dimension / Item	Factor loadings - EFA †	Stand'sd Coeff's - CFA ‡	Factor Mean Score *	C'bach's alpha **
Management resources			4.01	0.88
Management has… A strong commitment to exporting	0.78	0.77		
Management has… A global, internationally-oriented strategy	0.59	0.82		
Management has… A proactive attitude towards exporting	0.71	0.79		
Management has… A positive perception of export advantages	0.64	0.76		
Management has… An ability to overcome export barriers	0.40	0.72		
Organizational capabilities: Advanced technology			3.47	0.83
Our company… Has strong leadership in technology	0.72	0.85		
Our company… Develops technology by investing in R&D	0.83	0.79		
Our company… Acquires new technology	0.59	0.69		
Our company… Adopts new methods and concepts in manufacturing/service process	0.46	0.72		
Organizational capabilities: Quality of product/service			4.28	0.86
Our company… Provides consistent quality of products/ services	0.76	0.81		
Our company… Meets customer specifications and requirements	0.83	0.82		
Our company… Meets delivery dates	0.80	0.71		
Our company… Provides good quality after-sales service	0.65	0.76		
Organizational capabilities: Export planning			3.29	0.90
Our company… Implements a separate, well-defined export strategy	0.77	0.94		
Our company… Has a formalized export planning activity	0.64	0.89		
Knowledge-based resources: Export expertise			3.79	0.92
Our company… Has highly-skilled export personnel that deals with international markets/operations	0.89	0.95		
Our company… Has export personnel that are experienced in international operations	0.71	0.94		
Knowledge-based resources: Export knowledge			3.73	0.86
Our company… Has knowledge about the customers in our export markets	0.71	0.84		
Our company… Has knowledge about the competitors in our export markets	0.74	0.84		
Our company… Has information related to doing business in our export markets	0.67	0.77		
Relational resources: Business relationships			3.61	0.76
Our company has… Has good relationships with the distributors in our export markets	0.85	0.72		
Our company… Has good relationships with the supply chain in our export markets	0.68	0.85		
Relational resources: Government relationships			2.31	0.85
Our company… Has good government links in the UK	0.85	0.78		
Our company… Has good government links in our export markets	0.86	0.95		
Export performance			3.60	0.94
Over the past 5 years our exporting activities…				
… Have contributed significantly to our overall profitability.	0.55	0.64		
… Have generated a high volume of sales.	0.64	0.79		
… Have achieved rapid growth.	0.72	0.84		
… Have improved our international competitiveness.	0.74	0.86		
… Have strengthened our strategic position in the international market.	0.69	0.86		
… Have significantly increased our international market share.	0.85	0.89		
… Have been very successful.	0.84	0.87		
… Have fully met our goals and expectations.	0.75	0.73		
Physical Resources Index ††			3.63	N/A

† Absolute values. Construction half of the sample; N = 168 ‡ Validation half of the sample; N = 161
†† Physical Resources items were omitted from measurement model; observed mean score created as index
* Sample mean of observed unweighted average score across all items in dimension, full sample; 334 < N < 343
** Full sample; 334 < N < 343

Table 2. Inter-correlations between resources and performance factors† on full sample

		AVE††	1	2	3	4	5	6	7	8	9
1	Physical resources†	NA									
2	Management resources	0.66	0.52								
3	Organizational capabilities (Advanced technology)	0.76	0.60	0.46							
4	Organizational capabilities (Quality of product/service)	0.60	0.42	0.39	0.35						
5	Organizational capabilities (Export planning)	0.62	0.53	0.65	0.44	0.20					
6	Knowledge-based resources (Export expertise)	0.73	0.43	0.66	0.31	0.31	0.59				
7	Knowledge-based resources (Export knowledge)	0.82	0.59	0.64	0.40	0.44	0.62	0.66			
8	Relational resources (Business relationships)	0.71	0.52	0.47	0.33	0.27	0.49	0.48	0.62		
9	Relational resources (Government relationships)	0.50	0.42	0.23	0.31	0.10	0.41	0.25	0.40	0.38	
10	Export performance	0.71	0.36	0.64	0.40	0.18	0.50	0.42	0.52	0.38	0.21

† Physical resources represented by an observed index; all other variables are latent factors.
†† Average Variance Extracted (average squared multiple correlation of items loading upon this factor)

N = 329

Table 3. Competing Structural Equation Models for a resource-based model of export performance

Model		**χ^2, df**	**$\Delta\chi^2$, Δdf ‡**	**CFI**	**RMSEA**	**SRMR**
A	Full model: direct and indirect paths from all resources to performance.	1197, 543		0.917	0.061	0.058
B	Equality of effects model: Paths from resources to performance and strategy are fixed equal across resources	1340, 567	143, 24*	0.902	0.064	0.065
C	Fully mediated model: no direct paths from resources to Performance	1280, 552	83, 9*	0.908	0.063	0.091

N = 329

‡ change assessed vs. baseline Model A (fully mediated);

* model offers significantly poorer fit at $p < 0.05$ level;

Table 4. Standardised path coefficients from Model A – resources' concurrent effects on performance; direct effects and indirect effects via strategy

	Effect on export strategy		***Effect on export performance***	
	(on Export intensity)	***(on Export spread)***	***Direct Effect***	***‡Indirect effect (via strategy)***
Resources and Capabilities				
Management resources	**0.623***	**0.169***	**0.345***	**0.183***
Knowledge-based resources (Export knowledge)	0.129	**0.163***	**0.215***	**0.057***
Knowledge-based resources (Export expertise)	0.048	**0.249***	-0.157	**0.050***
Organizational capabilities (Export planning)	-0.132	-0.017	0.106	-0.036
Organizational capabilities (Quality of product/service)	-0.116	-0.283	-0.073	-0.072
Organizational capabilities (Advanced technology)	0.099	0.046	**0.140***	0.032
Relational resources (Business relationships)	-0.018	-0.003	0.044	-0.005
Relational resources (Government relationships)	0.013	-0.177	-0.008	-0.023
Physical resources	-0.233	0.071	-0.069	-0.048
Export Strategy				
Export intensity			**0.253***	
Export spread			**0.151***	
Control Variables				
Export experience	**0.143***	**0.279***	-0.120	
Company size	-0.062	**0.131***	0.001	

N = 329
* $p < 0.05$ (1-tailed test)

‡ Indirect effects exist via each of the mediating strategy variables, and for each combination of resource and mediating variable, they were calculated as the product of the path coefficient from the respective resource to mediating variable with the path from mediating variable to performance. The overall indirect effect via strategy (i.e. both mediating variables) was calculated by summing the indirect effects found via each mediator, with the resulting value tested for its statistical significance.

Appendix 1 – – Survey questionnaire: Resource-related questions and Performance-related questions, answered on a five-point Likert-type scale ranging from (1) Strongly disagree to (5) Strongly agree

Please indicate the extent to which you agree with each of the following statement

(Physical resources) **Our company:**
A. Uses modern technology and equipment
B. Has preferential access to valuable sources of supply
C. Has sufficient production/service capacity
D. Has access to available financial resources to be devoted to export activities
E. Has introduced at least one new product/service in the last two years

(Managerial resources) **In our company the management has:**
A. A significant experience in exporting
B. A strong commitment to exporting
C. A global, internationally-oriented strategy
D. A proactive attitude towards exporting
E. A positive perception of export advantages
F. An ability to overcome export barriers

(Organizational capabilities) **Our company:**
A. Has strong leadership in technology
B. Develops technology by investing in R&D
C. Acquires new technology
D. Adopts new methods and concepts in the manufacturing/service process
E. Provides consistent quality of our products/ services
F. Meets customer specifications and requirements
G. Meets delivery dates
H. Provides good quality after-sales service
I. Implements a separate, well-defined export strategy
J. Has a formalized export planning activity
K. Has dedicated resources to researching the export market
L. Has a well-defined market selection strategy
M. Has an internationally orientated culture

(Knowledge-based resources) **Our company has:**
A. Highly-skilled export personnel that deals with international markets/operations
B. Export personnel that is experienced in international operations
C. Significant company international experience
D. Timely export market-related information
E. Knowledge about the customers in our export markets
F. Knowledge about the competitors in our export markets
G. Knowledge about the distributors in our export markets
H. Information related to doing business in our export markets

(Relational resources) **Our company has:**
A. Good relationships with the distributors in our export markets
B. Good relationships with the supply chain in our export markets
C. Good communication with customers in our export markets
D. Good government links in the UK
E. Good government links in our export markets

(Performance) **Over the last 5 years our exporting activities:**
A. Have contributed significantly to our overall profitability.
B. Have generated a high volume of sales.
C. Have achieved rapid growth.
D. Have improved our international competitiveness.
E. Have strengthened our strategic position in the international market.
F. Have significantly increased our international market share.
G. Have been very successful.
H. Have fully met our goals and expectations.